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DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP
2101 L STREET NW
WASHINGTON, DC 20037-1526

EXAMINER

NORRIS, JEREMY C

ART UNIT PAPER NUMBER

2827

DATE MAILED: 11/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/808,156

Applicant(s)

JAMES, STEPHEN L.

Examiner

Jeremy C. Norris

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23-29 is/are allowed.
- 6) ☒ Claim(s) 1-4, 8-16, 19-22, 30-36, 39 and 40 is/are rejected.
- 7) ☒ Claim(s) 6, 7, 17, 18, 37 and 38 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 28 June 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 8-10, 30-33, 36, 39, and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,789,803, granted to Kinsman (hereafter Kinsman).

Kinsman discloses, referring to figures 3A-3FF, a structure for use in a semiconductor package, said structure comprising: a first adhesive material (36) provided between a die (10) and a circuit board (28), said first adhesive material in parallel to a length of a wirebond slot in said circuit board, said first adhesive material residing on a first side of said wirebond slot; a second adhesive material (36) provided between said die and said circuit board, said second adhesive material in parallel to said length of said wirebond slot in said circuit board; said second adhesive material residing on a second side of said wirebond slot; and a third material (not shown) provided on said circuit board and extending between said first and second materials to form a diversion dam for an encapsulation material (see col. 5, lines 40-45) [claim 1], where said first material is an adhesive tape (see col. 4, lines 40-50) [claim 2], where said adhesive tape is a double sided adhesive tape [claim 3], where said second material is an adhesive tape [claim 4], where said adhesive tape is a double sided adhesive tape [claim 5], wherein said third material is a thin layer of material applied to

one or both of said die and said circuit board, at a location adapted to face an inlet for an encapsulation compound (see col. 5, lines 40-45) [claim 8], wherein said third material resides on said die [claim 9], wherein said third material resides on said circuit board [claim 10].

Kinsman also discloses a die mounting structure comprising: a die (10); a circuit board (28) containing a wirebond slot; a first piece of double side adhesive tape (36) secured between said die and said circuit board, said first piece of tape being parallel to a length of said wirebond slot, said first piece of tape residing on a first side of said wirebond slot; a second piece of double side adhesive tape (36) secured between said die and said circuit board, said second piece of tape being parallel to said length of said wirebond slot in said circuit board; said second piece of tape residing on a second of said wirebond slot; and a thin layer of material (see col. 5, lines 40-50) provided between said first and second pieces of doubled sided adhesive tape to form an encapsulation diversion dam [claim 30], where said thin layer of material is at a location adapted to face an inlet for an encapsulation compound [claim 31], wherein said thin layer of material resides on said die [claim 32], wherein said thin layer of material resides on said circuit board [claim 33].

Moreover, Kinsman discloses a method of encapsulating a semiconductor package, said method comprising: securing a first adhesive material (36) between a die (10) and a circuit board (28), said first adhesive material extending in parallel to a length of a wirebond slot in said circuit board, said first adhesive material residing on a first

side of said wirebond slot; a securing a second adhesive material (36) between said die and said circuit board, said first adhesive material extending in parallel to said length of said wirebond slot in said circuit board, said first adhesive material residing on a second side of said wirebond slot; securing a third material (not shown) between said die and said circuit board and extending between said first and second adhesive materials (see col. 5, lines 40-50); and injecting a compound (40) into a gate, said compound being directed by said third material to fill said wirebond slot last (actually, first last and only) [claim 36], wherein said step of securing said third material comprises applying a thin layer of material on said die, said thin layer of material contacting said first and second adhesive materials to form a diversion dam [claim 39], wherein said step of securing said third material comprises applying a thin layer of material on said circuit board, said thin layer of material contacting said first and second adhesive materials to form a diversion dam [claim 40].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinsman in view of US 6,124,629, granted to Murakami et al (hereafter Murakami).

Kinsman discloses the claimed invention as described above except Kinsman does not specifically state that the semiconductor die is a memory die. Murakami

teaches using a memory die as the semiconductor die in a lead-on-chip device (see col. 16, lines 30-35). Therefore, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to use the memory die taught by Murakami in the invention of Kinsman. The motivation for doing so would have been to create a leaded memory device.

Claims 12-16 and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinsman in view of Murakami and US 6,285,558, granted to Frantz et al. (hereafter Frantz).

Kinsman discloses, referring to figures 3A-3FF, a structure for use in a semiconductor package, said structure comprising: a first adhesive material (36) provided between a die (10) and a circuit board (28), said first adhesive material in parallel to a length of a wirebond slot in said circuit board, said first adhesive material residing on a first side of said wirebond slot; a second adhesive material (36) provided between said die and said circuit board, said second adhesive material in parallel to said length of said wirebond slot in said circuit board; said second adhesive material residing on a second side of said wirebond slot; and a third material (not shown) provided on said circuit board and extending between said first and second materials to form a diversion dam for an encapsulation material (see col. 5, lines 40-45). Kinsman does not specifically state that the semiconductor die is a memory die. Murakami teaches using a memory die as the semiconductor die in a lead-on-chip device (see col. 16, lines 30-35). Therefore, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to use the memory die taught by Murakami in the

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invention of Kinsman. The motivation for doing so would have been to create a leaded memory device. Moreover the invention of Kinsman, even as modified by Murakami, does not disclose a processor system comprising: a memory; and a processor coupled to said memory [claim 12]. Frantz teaches, referring to figure 5, a processor system comprising, a processor (1) coupled to a memory (10). Therefore, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to use the memory device disclosed by the invention of Kinsman as modified by Murakami in the invention of Frantz since Kinsman teaches that the device may be coupled to a printed circuit board (see col. 3, lines 35-40). The motivation for doing so would have been to use a memory device having a foot print that is essentially the same as the unpackaged die, resulting in a more efficient use of board space. Moreover, the invention of Kinsman as modified by Frantz and Murakami discloses that said first material is an adhesive tape [claim 13], where said adhesive tape is a double sided adhesive tape [claim 14], where said second material is an adhesive tape [claim 15], where said adhesive tape is a double sided adhesive tape [claim 16], wherein said third material is a thin layer of material applied to one or both of said die and said circuit board at a location adapted to face an inlet for an encapsulation compound [claim 19], wherein said third material resides on said die [claim 20], wherein said third material resides on said circuit board [claim 21], wherein said die is a memory die [claim 22].

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,159,764, granted to Kinsman et al. (hereafter Kinsman-2).

Kinsman discloses the claimed invention as described above except Kinsman does not specifically disclose that said die includes a processor. However, Kinsman-2 teaches an LOC device wherein the IC can include a processor (see col. 4, line 66). Therefore it would have been obvious, to one having ordinary skill in the art, at the time of invention, to use the processor taught by Kinsman-2 in the invention of Kinsman. The motivation for doing so would have been to create a leaded processor device.

Response to Arguments

Applicant's arguments filed 28 June 2002 have been fully considered but they are not persuasive. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., that the claimed third material is located between the die and the circuit board) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The term "between" does not limit the third material to simply the plane the first and second materials lie in. If Applicants feel this is an important limitation to the claimed device, the Examiner suggest expressly incorporating said limitation into the claims.

Allowable Subject Matter

Claims 23-29 are allowed.

Claims 6, 7, 17, 18, 37 and 38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 37 and 38 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy C. Norris whose telephone number is 703-306-5737. The examiner can normally be reached on Mon.-Th., 9AM - 6:30 PM and alt. Fri. 9AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-0725 for regular communications and 703-308-0725 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JCSN
November 4, 2002

Albert W. Paladini 11-4-02
ALBERT W. PALADINI
PRIMARY EXAMINER